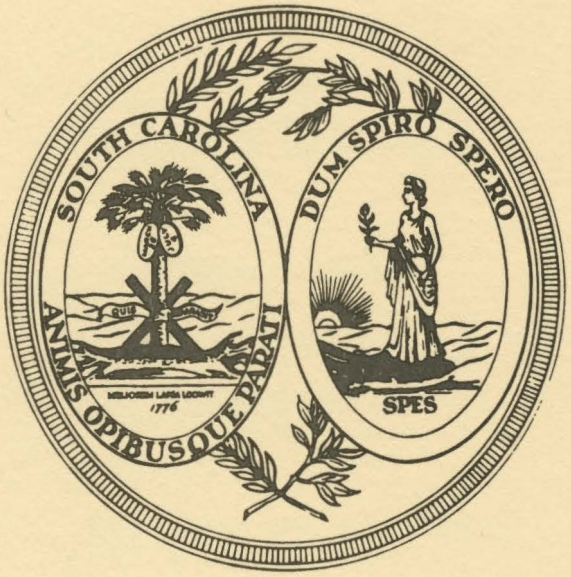
South Carolina General Assembly



Legislative Audit Council

The State of South Carolina
General Assembly
Legislative Audit Council
Management and Performance Review
of the Environmental Quality Control
Division of the Department of
Health and Environmental Control
July 23, 1980

THE STATE OF SOUTH CAROLINA

GENERAL ASSEMBLY

LEGISLATIVE AUDIT COUNCIL

MANAGEMENT AND PERFORMANCE

REVIEW OF THE

ENVIRONMENTAL QUALITY CONTROL DIVISION

OF THE SOUTH CAROLINA

DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

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INTRODUCTION

The Legislative Audit Council was requested to evaluate the Office of Environmental Quality Control (EQC) within the Department of Health and Environmental Control (DHEC). More specifically, the Council was requested to investigate whether the "independence and efficiency of EQC had become impaired by inappropriate relationships between State regulators and regulated interests" and whether that office exhibited a "certain lack of sound management control."

In complying with these requests the Council's review covers the DHEC Board, agency-wide administration, and program operations. This study focuses on one of the four divisions of EQC, the Bureau of Wastewater and Stream Quality Control. In addition, the Hazardous Waste Program within the Bureau of Special Environmental Programs is examined.

The Council's evaluation includes a review of State and Federal laws and regulations, and agency policies and procedures. Numerous interviews were held with DHEC officials and staff, and with environmental professionals outside DHEC. The Council appreciates the cooperation and professionalism shown by the officials and staff of DHEC throughout the course of this study. In addition, a national survey of state environmental agencies was conducted. Tests were made throughout the management control systems of the agency and documentation was scrutinized. These and other methods are explained in more detail within the body of the report.

BACKGROUND

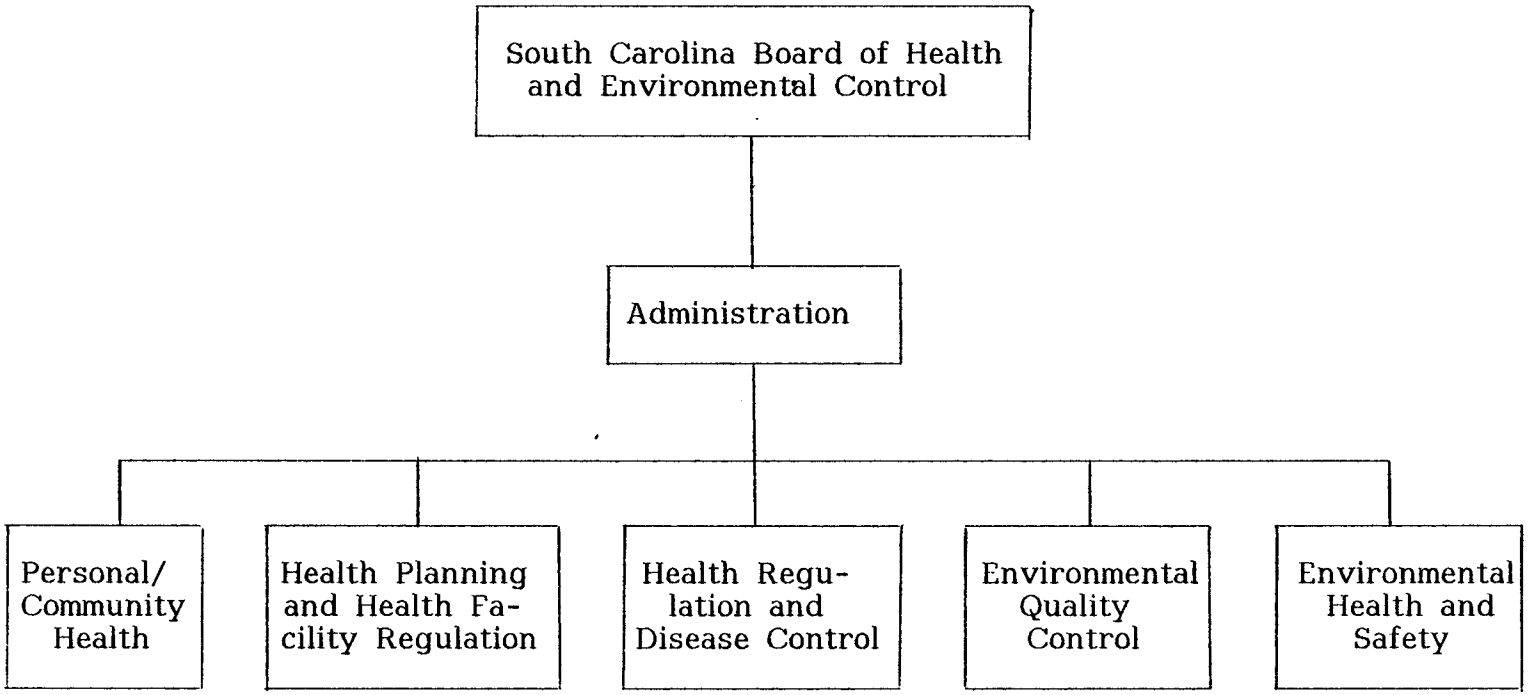
The State Board of Health and its successor, the Department of Health and Environmental Control (DHEC), have been involved in environmental control since 1878. DHEC was formed in 1973 when the State Board of Health and the Pollution Control Authority (PCA) were merged. As shown in Table 1, there are five functional areas other than administration which operate under the DHEC Board. The agency's total estimated expenditures for FY 78-79 are $90.8 million, while EQC is $8.2 million of that amount. Within the EQC structure (Table 2) are four bureaus. The Bureau of Field and Analytical Services provides supportive services (technical, analytical, laboratory and engineering) to the programs of the other three bureaus. The functions of the various bureaus are generally described in the table, and where appropriate are described in more detail in the body of the report.

Since the merger, EQC's responsibilities have increased substantially. Federal laws have required the State to establish and expand programs to protect the environment. This growth is reflected in EQC's staff which has almost tripled in size since 1973. In June 1973, EQC had 141 positions, 9 of which were vacant. By 1979, the number of positions had grown to 411 with 35 vacancies.

EQC's operating expenses have also increased rapidly as Table 3 indicates. State appropriations rose from $2.3 million in FY 73-74 to nearly $5.3 million in FY 78-79, an increase of 129%. Federal funds show an increase of 142% during the same period.

TABLE 1

DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL



Note: The organizational structure depicted is correct as of December 1979. Since that time revisions have been underway to more clearly define health and environmental functions.

TABLE 2

ENVIRONMENTAL QUALITY CONTROL

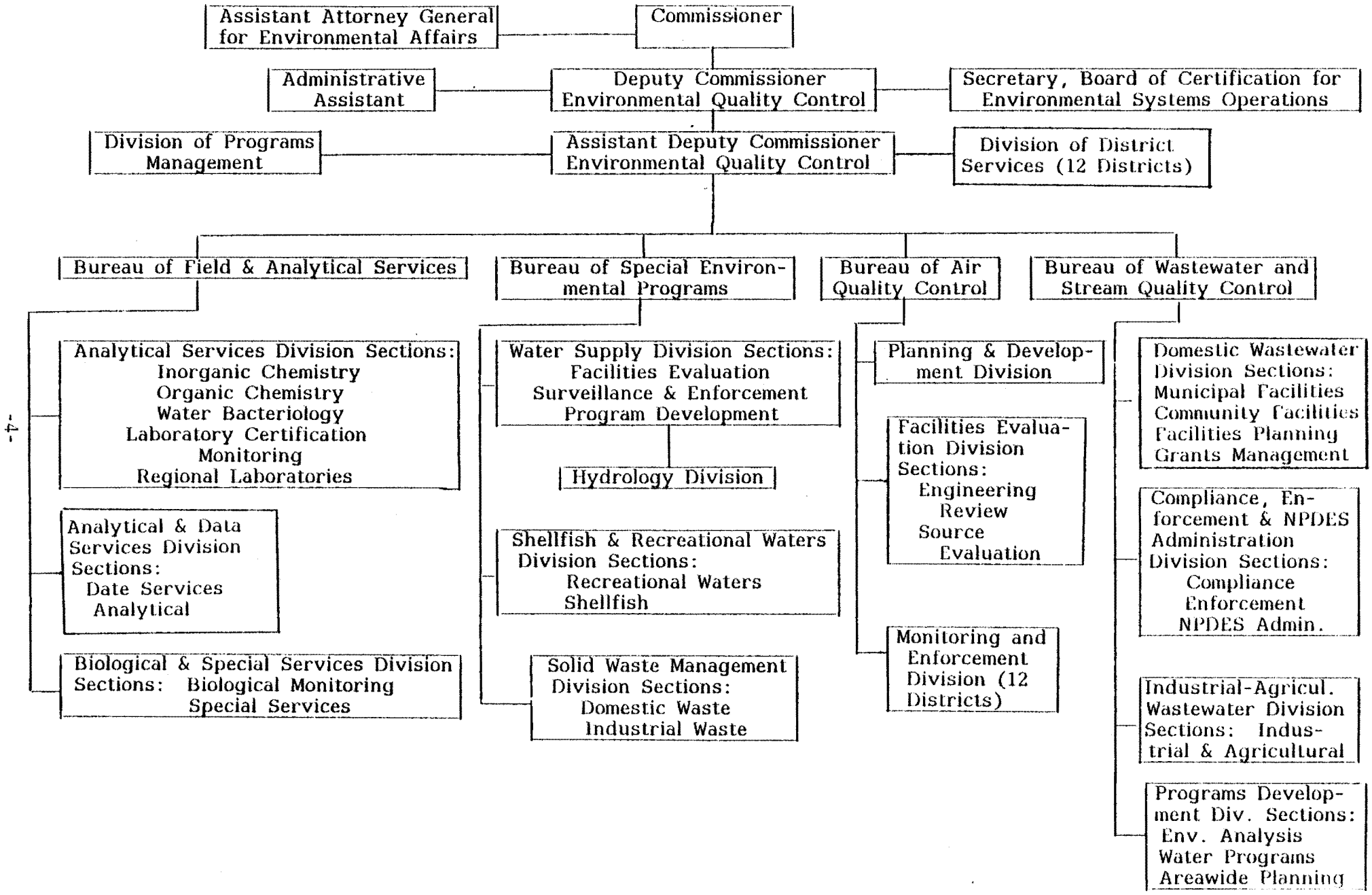


TABLE 3

EQC EXPENDITURES BY SOURCE OF FUNDS FROM FY 73-74 TO FY 78-79

Expenditures

Bureau	1973-1974	1974-1975	1975-1976	1976-1977	1977-1978	1978-1979
Wastewater	$1,602,603	$1,562,706	$1,047,579	$1,021,330	$1,713,302	$1,255,109
Air	622,445	957,095	962,650	980,170	1,272,727	1,385,957
Water Supply	140,677	244,451	330,590	467,139	707,640	655,343
Shellfish	105,257	95,494	105,717	106,480	169,741	145,169
Rec. Water	149,034	135,853	145,185	135,071	159,564	138,956
Solid Waste	174,734	291,003	388,752	404,637	546,457	838,850
Field & Analytical Services	260,665	609,443	1,652,782	1,797,005	2,415,774	2,217,254
Administration	439,772	664,137	384,711	474,452	518,442	424,120
Rural Water & Sewer Grants	-	80,000	379,500	134,000	455,800	289,600
Fringe Benefits	-	-	-	-	-	819,410
TOTAL	$3,495,187	$4,640,182	$5,397,466	$5,520,284	$7,959,447	$8,169,768

Source of Funds

State	$2,300,130	$3,074,060	$3,426,233	$3,565,999	$4,996,168	$5,271,982
Federal	1,195,057	1,566,122	1,971,233	1,954,285	2,840,148	2,890,195
Other					123,131	7,591
TOTAL	$3,495,187	$4,640,182	$5,397,466	$5,520,284	$7,959,447	$8,169,768

Notes:
(1) Source; State Budget Documents and Agency Internal Records.
(2) This statement is not audited by LAC.
(3) Total expenditure figures do not include any allocation of DHEC administrative costs.

REPORT SUMMARY

The following summary provides an overview of the findings and recommendations contained in this report. Many positive actions have been taken by DHEC since the conclusion of the Council's study which should be considered. Such actions are noted to some extent within the body of the report and also in the Agency's comments (see Appendix A).

- The DHEC Board needs membership guidelines to ensure continuity of representation. A review of the history of DHEC indicates that Board membership is subject to imbalances in representation. A board's composition should promote accountability and public confidence (see p. 10).

- DHEC needs to evaluate the efficiency and effectiveness of its district inspectors. The Council examined the time sheets of four Operation and Maintenance Inspectors in separate districts over a three-month time period. The average length of time for the same type inspection differed greatly among the four inspectors. This raises a question as to whether some inspectors use an excess of time or conduct more thorough inspections. Close monitoring of inspections is important because there are more than a hundred district employees who conduct inspections of some kind, making it possible that many man-hours could be used more effectively (see p. 15).

- EQC has improved its property inventory system since an audit made in 1976. However, the Council noted three deficiencies in the property inventory system which have been or are being corrected: (1) Between $50,000 and $100,000 of EQC's two-way radio inventory was not recorded on an inventory list, (2) EQC had placed $74,733 of its inventory on an "inactive" list without providing an adequate investigation, (3) Both the central and district offices of EQC were cluttered with surplus property (see p. 17).

- Within DHEC, Environmental Quality Control is responsible for monitoring and protecting the environment. According to experts in the field, water quality can not be easily assessed. Yet, the measure of water quality is likely the best measure of the success of EQC's wastewater efforts. Several sources indicate that, overall South Carolina's water quality is good and that improvements are being made. The Council's review indicates that enforcement responses actively seek cooperation and voluntary compliance. While this is the most desirable approach, in some cases it can become time consuming and may be perceived as unfair to those who have committed their resources to stay in compliance. Other than the economic advantage gained by delaying compliance, the Council found the process to be equitable. Although, under the present system, better guidelines are needed for grouping enforcement activities by seriousness and especially duration. The Enforcement Section needs to monitor more closely permittees which do not submit required reporting information. The major portion

of the monitoring by EQC depends on permittees sending in quarterly Discharge Monitoring Reports (DMR's). These "self-monitoring" reports show the actual discharge of the permittee along with the permit limits for each three-month reporting period. Without these reports the Enforcement Section does not know the status of most permittee's compliance. The Council's review of all dischargers for a series of months indicates that a substantial number did not consistently submit DMR's. For the time period reviewed, an average of 20% of those required to report, were not doing so. However, there was a trend toward a reduction in the percentage of permittees not reporting (see p. 22).

- The Environmental Protection Agency's (EPA) Wastewater Treatment Plant Construction Grants Program has become the largest public works effort in the nation. South Carolina's allotment was $84 million for FY 78-79, which included $43 million carried over from the previous year that must be obligated or returned. Since 1973 EQC has been involved in the obligation of $249 million in grant funds. The many projects funded through this program have helped maintain and improve the State's water quality. Considering the administrative limitations placed on DHEC, the Council concludes that this program has been reasonably well-managed. The Council's study indicates that administrative weaknesses existed in EQC's handling of the priority system, and that consideration should be given to improving the priority formula. With the Federal assistance now provided for administration, EQC should be better able to meet these needs (see p. 35).

- South Carolina is faced with the problem of what to do with an estimated 1.4 million tons of hazaradous waste generated in the State each year. The term "hazardous waste" does not include radioactive waste materials. In response to this issue, DHEC developed, and the General Assembly approved, hazardous waste regulations for South Carolina. Since there was no well-established program in effect, the Council reviewed the history of the problem and the events leading up to the approval of South Carolina's hazardous waste regulations on March 19, 1980 (see p. 49).

CHAPTER I

ADMINISTRATION

Introduction

The Council was requested to review DHEC's Office of Environmental Control to determine if there was a "lack of sound management control." The South Carolina Code of Laws of 1976, Section 44-1-50, mandates that the Board provide for the efficient and economic administration of the agency. This chapter examines several areas identified by the Council where general oversight and administrative improvements can be made. Recommendations are made which should assist the General Assembly and the DHEC Board in improving agency operations.

Need for Board Membership Guidelines

The DHEC Board needs membership guidelines to ensure continuity of representation. A review of the history of DHEC indicates that Board membership is subject to imbalances in representation. A board's composition should promote accountability and public confidence.

In the early 70's, Federal participation in State environmental affairs expanded pursuant to legislation concerning air and water pollution and solid waste management. It was incumbent upon states to formulate plans and promulgate regulations in these areas. States further assumed the responsibility of discharge permitting, monitoring and enforcement of environmental standards as well as the administration of grants to municipalities.

As a response to Federal initiatives, in 1973, the South Carolina General Assembly created a new agency, the Department of Health and

Environmental Control (DHEC) within which all pollution control functions were combined. Most of these activities were coordinated within the Division of Environmental Quality Control. The creation of DHEC also absorbed all statewide health activities into the agency. The merger of health and environmental functions followed the dissolution of the South Carolina Pollution Control Authority, the State Department of Health, and their respective governing boards.

The membership of the new DHEC Board was significantly altered from that of the former Health and Pollution Boards. The Health Board was composed of the South Carolina Medical Association and the Attorney General with an executive committee composed solely of representatives from the medical community. The Pollution Board consisted of seven appointed members and six members who served ex-officio. These members were appointed by the Governor with Senate confirmation, one from each Congressional District and one from the State at-large. The ex-officio members included: Water Resources, the State Health Officer, Wildlife Resources, Parks, Recreation and Tourism, Land Resources, and the Development Board. In an attempt to balance the health and environmental functions which would be combined in DHEC, and to effectively represent the range of interests which would be affected by the agency, a public or citizen's board was created. Members were to be appointed by the Governor to a four-year term and represent Congressional Districts in the State.

The first DHEC governing Board was represented by appointments from health, environmental, industrial, municipal and other sectors. Although, no specific criteria for membership were defined by law, legislative intent was clear: that health and environmental matters are

the purview of a broad range of public interest and should be represented without bias in the decision-making structure.

The need for guidelines concerning the continuity of Board representation can be observed over the past six years. During the period 1974 to 1977, the Board's membership was weighted in favor of medical affairs with four medical professionals serving on the seven member body. This Board served during a period when rapid growth was occurring within the Environmental Quality Control Division of DHEC, and when critical changes in environmental policy and management were affecting the State. The Board functioned with the benefit of input from a number of health related technical and citizens' advisory committees. Although State law allows the Board to establish advisory committees, no such committees on environmental matters were formed until 1979.

Since 1978 Board membership shows a re-emphasis of environmental and public representation. Also, an advisory committee for Hazardous Waste Standards was created and provided necessary environmental input to the Board. Additionally, a newly created Citizens Advisory Committee for Environmental Quality Control (required by Federal Regulations) has been established. This Advisory Committee should enhance the Board's decision-making capabilities due to its requirement for balanced representation from private citizens, public interest, public officials and economic interest, and its formal recommendations process. However, without guidelines which ensure a representative composition on the DHEC Board, membership may be subject to an imbalance of representation as previously experienced.

A survey of other states shows that definitive structures for health/environmental governing boards are used. Of 24 states which had public governing boards, 12 specified criteria for membership which included general interest and familiarity in the areas of health, environment and conservation and representation of agricultural, industrial, labor and municipal interests. Several states with combined health/environmental agencies such as Alabama, Colorado, Louisiana, Tennessee, North Dakota and Indiana made extensive use of special regulatory commissions to assist the boards in the areas of water and air pollution control and solid waste management. These commissions were represented on the agencies' governing boards and were responsible to the boards in most cases. Most states indicated that these commissions enabled agencies to be responsive to expanding regulatory and technical needs in environmental areas, and they also provided appropriate assistance in policy direction for the agency as a whole.

RECOMMENDATIONS

APPOINTMENTS TO THE DHEC BOARD SHOULD BE RESPONSIVE TO LEGISLATIVE INTENT WHICH SUGGESTS A BALANCE OF MEMBERSHIP IN HEALTH AND ENVIRONMENTAL AREAS AND WHICH IS REPRESENTATIVE OF A BROAD RANGE OF PUBLIC INTEREST. THE GENERAL ASSEMBLY SHOULD CONSIDER ESTABLISHING GUIDELINES FOR THE MINIMUM REPRESENTATION OF THE BOARD.

SUCH GUIDELINES SHOULD REQUIRE THAT AT LEAST ONE MEMBER OF THE BOARD BE FROM THE MEDICAL DISCIPLINE AND THAT AT LEAST, ONE MEMBER BE FROM A PRIVATE SECTOR ENVIRONMENTAL ORGANIZATION CONCERNED WITH THE BROAD RANGE OF MATTERS AFFECTING THE STATE'S ENVIRONMENT.

Need to Evaluate District Staff Efficiency

EQC maintains twelve district offices located throughout the State. Employees assigned to these offices conduct inspections, investigate complaints and provide other services to programs based in the central office. In general, the district employees have more varied responsibilities and less direct supervision than those in Columbia.

It is difficult to assess the efficiency of EQC's district staff members because they do not have routine daily schedules. The Council does conclude that EQC needs to review the efficiency and effectiveness of its district inspectors. The Council found that district employees take widely varying amounts of time to conduct similar activities, and that the district managers have not made enough effort to monitor this problem.

The Council examined the time sheets of Operation and Maintenance (O&M) inspectors in four districts over a three-month period (April-June 1979). These four inspectors were chosen at random from the 13 O&M inspectors on DHEC's staff. O&M inspectors conduct several kinds of State and federally required inspections. They also investigate complaints, monitor oil spills and perform other duties. The Council focused its study on the routine O&M inspection which is the major responsibility of the four inspectors. In addition to examining time sheets, Council staff traveled for a full day with an O&M inspector.

There are obviously many factors other than the ability and motivation of the inspector which affect the amount of time required to conduct an inspection. Factors such as the size of the facility, the competence of the facility operator, and the seriousness of the problems encountered can influence the inspector's speed. Over a three-month period of

time, however, inspectors visit a wide-enough range of facilities to make a comparison of their average times meaningful.

The following table indicates the average amount of time each of the four inspectors spent conducting a routine O&M inspection. The total number of inspections conducted during the three-month period is also included in the table.

	Average Time in Minutes	Total # of Inspections Conducted	Percent of Time Greater Than Inspector W
Inspector W	66	47	-
Inspector X	90	93	36%
Inspector Y	84	119	27%
Inspector Z	108	41	64%

Note: Travel time varies greatly and was therefore excluded from the computations shown.

As shown in the table, the average length of time for the same type inspection differs greatly among the four inspectors. Inspector Z is clearly much slower than Inspector W. This analysis raises a question of whether "Z" uses an excess of time, or is conducting a more thorough and comprehensive inspection than "W".

Proper management practices necessitate that EQC monitor the amount of time inspections take and the degree of thoroughness necessary. Such oversight is important because there are currently more than 100 district employees who conduct inspections of some kind, making it possible that many man-hours could be used more effectively.

RECOMMENDATION

EQC SHOULD STUDY ITS STAFFING NEEDS FOR INSPECTORS. GENERAL EFFICIENCY AND EFFECTIVENESS STANDARDS SHOULD BE DEVELOPED INSPECTIONS. DISTRICT MANAGERS SHOULD MONITOR STAFF EFFICIENCY BY COMPARING EMPLOYEES' TIME SHEETS AND PERFORMANCE TO THE STANDARDS.

Property Management

EQC maintains a property inventory valued at $1,587,964. During an audit of DHEC in 1976, the State Auditor's Office found that EQC had not properly accounted for 20-25% of its inventory. This was attributed to the lack of a clearly written policy for inventory control, inadequate supervision and a lack of effective internal auditing. Since 1976, DHEC has established a new metal tag decal system and written policies and procedures have been developed.

To test the results of these changes, a statistical sample of items was selected from EQC's central office inventory list. From a total of 2,257 items, a sample of 129 was taken. Only six, or 4.65%, of the items could not be located. These all belonged to the Field and Analytical Services Division. The property of six of EQC's 12 district offices was also selected for audit. These included Appalachia I (Anderson), Appalachia III (Spartanburg), Central Midlands (State Park), Pee Dee (Florence), Waccamaw (Myrtle Beach) and Trident (Charleston). Since the district offices are relatively small, all items on the district inventory lists were included in the audit. The Council

was able to locate all but 15, or 3%, of the 490 items assigned to these six district offices. Although there is still room for improvement in the Field and Analytical Services Division, EQC has apparently improved its property inventory system since the audit made in 1976.

The Council noted three deficiencies in the property management system which have been or are being corrected: (1) Between $50,000 and $100,000 of EQC's two-way radio inventory was not recorded on an inventory list (2) EQC had placed $74,733 of its inventory on an "inactive" list without providing an adequate investigation (3) Both the central and district offices of EQC were cluttered with surplus property.

Accounting for Radios

EQC did not maintain a complete and accurate inventory list of the two-way radios which are installed in most of the agency's motor vehicles and boats. In the six district offices which were audited, only 18 of the 42 radios found were recorded on the master inventory list. The other 24 were not on any list. The radios used by EQC cost approximately $1,000 each. Assuming that this situation exists in the other six district offices and in the central office, an estimated $50,000 to $100,000 of EQC's radio inventory may not have been properly recorded.

S. C. Code 10-1-140 requires a property inventory as follows:

> The head of each department, agency or institution of this State, which employs more than one hundred permanent employees shall be responsible for all personal property under his supervision and each fiscal year shall make an inventory of all such property under his supervision, except expendables.

Federal property management regulations state:

> Property records shall be maintained accurately and shall include a description of the property, manufacturer's serial number...location, use, and condition of the property and the date the information was reported. (Federal Management Circular A102, Attachment N.)

Investigation of Missing Property

EQC was not able to locate $74,733 of its property inventory in May 1978 when DHEC instituted a metal decal system. These items were put on an "inactive" list which EQC intended to write off. According to agency officials, EQC had difficulty in accounting for these items because no physical inventory was conducted in the agency between 1973 and 1976.

Sound property management practices require an adequate investigation of missing inventory items. Federal property management standards state:

> A control system shall be in effect to insure adequate safeguards to prevent loss, damage, or theft of the property. Any loss, damage or theft of nonexpendable property shall be investigated and fully documented. (Federal Management Circular A102 Rev. Attachment N.)

The Council conducted a short investigation of the missing items and during a half-hour search of the EQC lab in Columbia was able to locate two of the most expensive items on the "inactive" list, an $11,254 Gas Chromatograph and a $1,757 Mettler Balance. The most expensive item on the "inactive" list is a $13,995 Auto Analyzer II which consists of several components. Although this item could not be positively identified, it appeared that the item was also listed on the active inventory as three or four separate items, all components of the Auto Analyzer II System. A $315 Pressure Recorder on the "inactive" list

was located at the State Park EQC District Office. These four items account for $28,321, or more than one-third of the supposedly missing inventory. Since the Council's visit, DHEC has taken further actions to locate and resolve the disposition of such items.

Surplus Property Disposal

Both the district and central offices were cluttered with outdated and surplus equipment. When questioned about this equipment, most EQC employees responded that in State Government things just are not easily sold or disposed of. State regulations on surplus property provide:

> Agencies having surplus property should notify Central State Purchasing in writing, giving a complete description of the item or items...If after 30 days the items are not transferred to another agency, Central State Purchasing will arrange a sale or delegate authority for the agency to sell. (Purchasing Policies and Procedures, p. 42).

The Council was not able to estimate the full amount or value of the excess property, but some of it could likely be sold. EQC's retention of excess property is inefficient because storage space is necessary. The funds tied up in this property could be used to purchase needed equipment or returned to the State's General Fund. Since the Council's visit, DHEC has taken action to dispose of surplus property on a continuing basis.

RECOMMENDATIONS

(1) DHEC SHOULD ENSURE THAT ALL EQC PROPERTY INCLUDING RADIOS IS PROPERLY RECORDED ON THE MASTER INVENTORY LIST.

(2) DHEC SHOULD CONDUCT A THOROUGH INVESTIGATION OF EQC'S "INACTIVE" INVENTORY AND DOCUMENT ITS EFFORT. THIS INVESTIGATION SHOULD BE CONDUCTED BEFORE ANY WRITE-OFF IS ALLOWED. IF ANY IMPROPRIETIES ARE FOUND APPROPRIATE ACTION SHOULD BE TAKEN.

(3) EQC SHOULD MAKE A DETERMINED EFFORT TO SELL AND/OR DISPOSE OF SURPLUS PROPERTY. THE MONEY SHOULD THEN BE RETURNED TO THE GENERAL FUND OR TO THE APPROPRIATE FEDERAL PROGRAM BASED ON THE RATIO OF FEDERAL AND STATE FUNDS USED FOR THE ORIGINAL ACQUISITION.

CHAPTER II

BUREAU OF WASTEWATER AND STREAM QUALITY CONTROL

Introduction

The nation has set a 1983 goal of achieving water quality that provides for both recreational activity and the protection of fish and wildlife. As the population and economy of South Carolina continue to grow, placing increased demands on our land and water resources, it becomes important to protect the State's water quality so that the interests of all water users may be served. As South Carolina's environmental protection agency, DHEC has the responsibility to evaluate the effects of man's increasing activity on water quality, and decide which control measures and actions are necessary to abate pollution problems. Environmental Quality Control (EQC), within DHEC, is responsible for monitoring and protecting the environment.

According to experts in the field, water quality can not be easily assessed, yet, the measure of water quality is probably the best measure of the success of EQC's wastewater efforts. Several sources indicate that, overall South Carolina's water quality is good and that improvements are being made.

First, an EPA report, "Southeast Environmental Profiles 1977, shows nine major rivers in South Carolina as having excellent, good and satisfactory ratings:

Congaree-Broad	Good to Satisfactory
Wateree-Catawba	Good to Satisfactory
Yadkin-Pee Dee	Good
Savannah-Tugaloo-Chatooga	Good
Saluda	Excellent to Good
Lynches	Good

Cooper	Good
Santee	Good
Little Pee Dee	Good

Note: Excellent - meets Federal Water Quality Goals,
Good - usually meets Goals,
Satisfactory - provisionally meets Goals.

The report notes that two important types of problems are not included in these ratings: (1) poor water quality on tributaries to these major rivers, and (2) problems related to water quality not yet included as a measurement factor in the index.

To comply with the Federal Water Pollution Control Act of 1972, DHEC submitted to Congress an indepth analysis of the water quality of major stream segments. For the period January 1, 1977 to December 31, 1979, the report concluded:

> Currently, 84% of the waters of the State of South Carolina meet the "swimmable-fishable" goal the majority of the time. A breakdown by the four major basins in the State show that the Pee Dee met the goal 85% of the time, the Santee-Cooper 80%, the Edisto-Combahee 81%, and the Savannah 94%. Specific waters showing improvement include the Pocotaligo River, Black Creek, Lake Robinson, Catawba-Wateree Rivers, Broad/Congaree/Cooper Rivers, Reedy River, North Pacolet/Pacolet Rovers, North Fork Edisto River, Four Hole Swamp, and Lake Jocassee. The quality of Lake Greenwood decreased over the three-year period.

One of the goals in the Federal Clean Water Act is that, "where attainable" fishable-swimmable quality is to be met by 1983. According to DHEC officials, in some cases this goal can not be met due to certain uncontrollable conditions. Such conditions include runoff pollutants which can not be easily traced or regulated and natural conditions such as high acidity in swamp areas. In other cases, additional improvements will be needed in wastewater treatment facilities.

Additionally, DHEC has made efforts to assure the proper construction of wastewater treatment systems. In order to assure good engineering practice in the construction of new wastewater treatment facilities or alternatives to existing facilities, a Construction Permit is required prior to construction. Applicants must submit an engineering report and a water quality impact analysis for approval. Detailed plans and specifications are prepared and submitted together with a formal application with the seal of a licensed engineer. Each project receives a preliminary site inspection and when the construction is completed, the facility receives a final inspection for conformance with the approved plans.

Since 1973 the Department had issued 4,186 Construction Permits for wastewater treatment or collection systems. A large number of permits were for the upgrading of treatment plants to comply with National Pollutant Discharge Elimination System (NPDES) Permits. In some cases, facilities were upgraded several times. The rest of the permits were issued to new facilities and reflect the required technological improvements, or were for collection systems.

In the past six years, thousands of upgrades have been made at industrial, municipal and subdivision wastewater treatment systems. The progress made in upgrading systems, and the efforts to implement treatment technology and water quality compliance activities, indicates that EQC has been effective in wastewater improvement.

This review of the Bureau of Environmental Quality Control does not attempt to analyze fully the extent of improvement in water quality or to judge the effectiveness of specific pollution limits established by EQC. This chapter examines the operations of two key programs within

the Bureau of Wastewater and Stream Quality Control, Section I - Wastewater Enforcement and Section II - The Municipal Construction Grants Program.

Section 1 - Wastewater Enforcement

Introduction

Environmental protection is a regulatory system of planning, monitoring and evaluation, but an important aspect of such a system is enforcement. Without an enforcement program that consistently requires compliance in a timely manner the accomplishment of the overall goals of the program can be impeded.

The responsibility of the Enforcement Section within the Bureau of Wastewater and Stream Quality Control at EQC is to take appropriate enforcement actions against violators of water quality standards in South Carolina. The bulk of the Enforcement Section's workload includes about 1,600 dischargers regulated by EQC under the National Pollutant Discharge Elimination System (NPDES).

The NPDES system, was created under the 1972 amendments to the Clean Water Act (Public Law 92-500). The NPDES Program was approved by the EPA and the delegation of authority to administer the program was granted in June of 1975. According to DHEC officials this was one of the first State programs approved, South Carolina being the second State in EPA Region IV to be granted such authority. Each discharger of pollutants into the nation's waters is required to obtain an NPDES permit. The permit is, in effect, an enforceable contract between the discharger and the State. The system was created to provide clear pollution standards and abatement schedules for every discharger. To

meet the timetables established in the Act, Congress decided that enforcement provisions must be included and that, according to Senate Report No. 92-414, "the threat of sanction must be real, and the enforcement provisions must be swift and direct."

Compliance with permit conditions is the goal of the NPDES program. Violations of permit conditions include (1) violations of effluent or outflow limitations designed to protect water quality; (2) violations of permit compliance schedules issued with a permit requiring the construction of wastewater treatment facilities or the upgrade of existing facilities, and (3) violations of proper operation and maintenance of treatment facilities.

When the conditions of a permit are violated, timely and consistent enforcement actions are needed to provide for an effective enforcement process which promotes future compliance. This requires not only an effective strategy of enforcement, but effective use of that strategy to maintain the integrity of the program. EQC's enforcement procedures list two objectives of its strategy:

> (1) To develop an equitable and timely enforcement strategy that will provide for efficient utilization of the Agency's enforcement resources. To insure maximum pollution abatement through the NPDES program.
>
> (2) To maintain the integrity of the Agency's enforcement program by making noncompliance less attractive than compliance.

To examine the Enforcement Section's actions, the Council conducted interviews with enforcement personnel in the United States Environmental Protection Agency (EPA) who monitor the NPDES program in South Carolina, with management and technical level personnel within EQC and with private laboratory and engineering consultants. The Council

examined pertinent agency documents, records and other literature; and conducted a sample of Notices of Violation (NOV) issued to permittees during the period January 1, 1976 through August 31, 1978. For the 113 dischargers which had received at least one Notice of Violation, the NPDES files were reviewed in depth. Also, a sample of all NPDES permittees from the Enforcement Section's compliance status reports was conducted. This information was used to verify compliance estimates developed by the Council. This methodology is to provide an overall assessment of the extent to which the Enforcement Section meets its stated objectives and to make any possible recommendations for improvement.

Enforcement Responses

The Council's review indicates that enforcement responses actively seek cooperation and voluntary compliance. While this is the most desirable approach, in some cases it can become time-consuming and may be perceived as unfair to those who have committed their resources to stay in compliance. Other than the economic advantage gained by delaying compliance, the Council did not find that inequity in enforcement activity had occurred. Although, under the present system, better guidelines are needed for grouping enforcement activities by seriousness and especially duration.

Even though voluntary compliance is preferred by law and is frequently accomplished by use of the weaker enforcement mechanisms available, the Enforcement Section's emphasis on less stringent methods allowed some violators in the Council's sample to avoid compliance for extended periods of time. A cooperative approach to enforcement is

appropriate for initial responses where violations are minor but this approach becomes less effective where recurring violations exist. As discussed in the following paragraphs, about half of the facilities sampled at the time of the Council's review did not meet the permit limits designed to ensure the State's "fishable/swimmable" water quality standards. It is important to note that all permit violations do not necessarily create an immediate or long range environmental problem even though permits are designed with the best available knowledge and resources. However, maintaining permit limits regularly on a statewide basis is to assure the overall maintenance and improvement of water quality.

Enforcement Regulations require that violations of permit conditions be treated in priority order with those having the most detrimental impact on the environment or creating a health hazard receiving more immediate and stringent treatment. This procedure focuses the Enforcement Section's efforts on the more significant problems but does not excuse minor violations, even though they may not receive immediate attention. It should be noted that during the time of the Council's review only four of the five professional Enforcement staff positions were consistently filled. This would have the effect of allowing minor violations to receive less attention.

Wastewater's Enforcement Section has available seven increasingly stringent enforcement mechanisms to bring dischargers who are in violation of permit conditions into compliance. These begin with the more informal mechanisms like phone calls and Notices of Violation (NOV's) and extend to more stringent actions such as Show Cause Conferences, Administratve Orders, Monetary Penalties and Court Actions (see Table 4).

TABLE 4

DESCRIPTION OF ENFORCEMENT MECHANISMS

(1) Phone Call - used generally in minor cases of failure to submit required reports. To be documented following the conversation with a memo to the file.

(2) Notice of Violation (NOV) - letter to the discharger documenting a violation. Requests response within specified amount of time indicating corrective action to be taken to achieve compliance.

(3) Show Cause Conference - generally used when a discharger fails to respond to an NOV or responds unsatisfactorily. Violator is required to meet with enforcement officials and explain the cause of the violation and the steps to be taken to alleviate it.

(4) Administrative Order - an agency directive issued under the authority of the South Carolina Pollution Control Act. Specifies the conditions and time within which the violation must be abated. May be issued with the consent of the violator depending on the position taken.

(5) Monetary Penalty - usually imposed along with an administrative order and may be as high as $10,000 per day/per violation. Penalties are generally assessed with DHEC Board approval, but the Enforcement Section has had the authority since November 1977 to assess penalties of up to $500 per day/per violation for violations by private domestic dischargers without Board approval.

(6) Attorney Referrals - generally reserved for violations not resolved by the above mechanisms. DHEC attorney goes into court to force compliance by the violator.

(7) Other - in addition to the above mechanisms the Enforcement Section can refer cases to the attorney for nuisance type violations and for criminal violations. The Enforcement Section also participates in adjudicatory hearings which are called before an outside hearing officer appointed by the DHEC Board to review any final determination of the department on any regulatory matter.

A review of the Enforcement Section's monthly reports for calendar years 1977 and 1978 was made to determine the total number and type of enforcement actions taken. In the two-year period, 2,621 actions were noted. Of these, 90% were Notices of Violation, 4% were for Show Cause Conferences, 6% were Administrative Orders, and attorney referrals were 0.2%. Enforcement measures stronger than Notices of Violations were used in only 10% of the instances reviewed.

In addition, a sample of 114 dischargers which had been cited for a total 516 violations was reviewed. This sample contained numerous instances where permitees received several Notices of Violation (NOV) over a period of a year or more before other enforcement action was taken. For example, of 52 dischargers who had received five or more NOV's, 81% had no other enforcement action taken against them. Of the 114 dischargers reviewed, 75% had received three or more NOV's,. while only 15% had been called to Show Cause Conferences, and only 22% had been issued orders. (Some dischargers receiving several NOV's, also had to show cause and/or were issued orders.)

The Enforcement Section did not always appear to respond in a timely manner. While Enforcement objectives call for timeliness, it was not clear what a reasonable time should be. In 73% of the cases reviewed by the Council in its sample of NOV's, the Enforcement Section took more than one month to respond to violations and in 24% of the cases, more than three months elapsed before enforcement action was taken against a discharger known to be in violation of his permit.

Follow-up actions to initial responses also appeared slow. The Council's sample indicates that the Enforcement Section averaged about two months between the time they became aware of a discharger's failure

to submit quarterly Discharge Monitoring Reports and when they took enforcement action. In some instances, dischargers were not notified until they had missed two or more quarterly reporting periods and some were not notified at all.

The Enforcement Section's degree of success from the sample shows that of 77 of the dischargers reviewed whose compliance status could definitely be determined, about half were in compliance at the time:

	Number	Percentage
In Compliance*	38	33
Out-of-Compliance	39	34
Unclear**	37	33
	114	100%

* Includes approved extensions.

** These were technically out-of-compliance, but 23 were waiting to tie-on, upgrade, or receive a new schedule; 14 were apparently cooperating to some extent.

Discharge Monitoring Reports (DMR's), submitted by the dischargers themselves, showing effluent violations also supported these numbers. The Council's sample of all NPDES permittees for two months from two separate reporting periods showed that slightly more than half of the dischargers were out-of-compliance with their permit conditions. In addition, the Enforcement Section's monthly reports for the period July 1978, through April 1979 showed that 59% (269 of 463) of the dischargers inspected for effluent violations were out-of-compliance (prior to July 1978 Enforcement did not maintain easily accessible records of the number of sampling inspections performed or the compliance status of the dischargers).

An Order (Administrative or Consent, depending on whether the discharger voluntarily agrees to make corrections), is usually the most

stringent action taken by the Enforcement Section. Such orders appear to achieve a higher degree of compliance. The Council reviewed 39 Orders issued by the Enforcement Section during 1977 and 1978. These Orders were chosen because their final compliance date had passed or was near. Of the 39 reviewed, 36% were found to have complied with their Orders in the time allotted, 23% had either partially complied, complied late, or had complied but subsequently had a violation. Thirty-one percent of the discharges were found to be out-of-compliance with their orders, while the status of the remaining 10% was not clear.

Monitoring of Dischargers

Permittees who do not submit the required reporting information should be monitored more closely by the Enforcement Section. The major portion of the monitoring by EQC depends on permittees filing quarterly Discharge Monitoring Reports (DMR's). These "self-monitoring" reports show the actual discharge of the permittee along with the permit limits for each three-month reporting period. Without these reports, the Enforcement Section does not know the status of most permittee's compliance.

The Council's review of all dischargers over a period of 24 months indicates that a substantial number did not consistently submit DMR's. For the time period reviewed, an average of 20% of those required to report, were not doing so. However, as shown in the following Table, there was a trend toward a reduction in the percentage of permittees not reporting.

	Not Reporting
October 1978	27%
January 1979	24%
April 1979	17%
October 1979	11%

The Council's review indicated that generally the same dischargers were continually not reporting. Of the dischargers who did not report in the first month reviewed, 52% also did not report in the second month. Of the remaining 48% who reported in the second month after failing to report in the first, 60% were out-of-compliance with their permit limits.

The Enforcement Section treats the failure to submit DMR's as a minor administrative violation even though other violations of which they are unaware may be occurring. Documentation from the NPDES files shows that dischargers were often not notified when they did not submit DMR's until two or more reporting periods (six months) had passed and in some cases not at all. In addition, the Council's sample of NOV's shows that 87% of those dischargers who received NOV's for DMR-related violations also received NOV's for other violations, particularly effluent and compliance schedule violations.

RECOMMENDATIONS

DHEC SHOULD DEVELOP GUIDELINES WHICH MORE CLEARLY DEFINE THE TYPES OF ENFORCEMENT ACTIONS TO BE TAKEN AND THE TIMEFRAMES WITHIN WHICH SUCH ACTIONS WILL BECOME STRONGER.

WHILE MONETARY PENALTIES ARE USED INFREQUENTLY, CLEARER GUIDELINES SHOULD BE CONSIDERED. SUCH GUIDELINES SHOULD BE BASED ON FACTORS SUCH AS: (1) THE HARM DONE TO THE ENVIRONMENT AND THUS THE PUBLIC, (2) THE GOOD FAITH OF THE DISCHARGER AND (3) ANY ECONOMIC GAIN TO THE DISCHARGER AS A RESULT OF DELAYS AND VIOLATIONS.

DHEC SHOULD CONTINUE TO MONITOR THE FREQUENCY OF PERMITTEES SUBMITTING THEIR DISCHARGE MONITORING REPORTS. SHOULD THE TREND CONTINUE TO IMPROVE, NO ADDITIONAL ACTION WOULD BE WARRANTED. HOWEVER, SHOULD REPORTING FAILURES TEND TO INCREASE DHEC SHOULD CONSIDER ESTABLISHING GUIDELINES FOR INSTANCES WHERE PERSUASION HAS NOT BEEN SUCCESSFUL. FOR EXAMPLE, SUCH GUIDELINES COULD ALLOW THE DEPARTMENT TO ASSESS A MINOR PENALTY THAT WOULD DEPRIVE THE PERMITTEE OF THE AMOUNT OF MONEY SAVED BY NOT REPORTING.

Section 2 - The Municipal Construction Grants Program

Introduction

The Environmental Protection Agency's (EPA) Wastewater Treatment Plant Construction Grants Program has become the largest public works effort in the nation. South Carolina's allotment was $84 million for FY 78-79, which included $43 million carried over from the previous year that must be obligated or returned. Since 1973, EQC has been involved in the obligation of $249 million in grant funds. The many projects funded through this program have helped maintain and improve the State's water quality. Considering the administrative limitations placed on DHEC, the Council concludes that this program has been reasonably well-managed.

EQC has been responsible for determining which projects in South Carolina receive priority for funding. Once the State has certified that a project is eligible for a grant, the Federal Government will pay 75% of the cost of constructing a new sewage treatment plant or upgrading an existing municipal system to resolve water pollution problems. The money goes directly to the municipality from EPA; EQC has been responsible for determining which municipality is entitled to priority for a grant over other eligible projects in the State.

The role of a priority system is defined in EPA Regulations (Municipal Wastewater Treatment Works, Construction Grants Program, October 1978):

> The priority system and lists are the principal mechanisms in the program for selecting who will be in line for grant funds, for scheduling grants, for planning obligations and outlays of funds, and for providing information to justify congressional authorizations and appropriations. The priority system and lists are, in short, the management tools which

> allow the Federal, State, and local governments to plan, budget, and oversee the construction grants program.

The Construction Grants Program is currently under close scrutiny by Congress with a thrust toward reducing the funds available. For FY 80, Congress authorized only $3.4 billion, an amount which was $.4 billion less than the funds approved for FY 79. Therefore, the priority system will continue to be crucial in allocating the limited funds available. The system must be able to effectively and objectively rank projects in order of need so that the most severe pollution problems in the State will be corrected.

In a study performed at the Federal level, the General Accounting Office (GAO) concluded that the entire Federal Construction Grants Program has not been efficiently managed:

> The Construction Grant Program has been unnecessarily slow and cumbersome, replete with financial and administrative control problems... EPA will continue to be plagued with program deficiencies unless it continues to give priority to improving the management of the program.

Since this Federal review, South Carolina has been delegated responsibility for the administration of the grants program, and the Federal Government is now providing DHEC with funds for administration which were not previously available. Although this report examines the period prior to the delegation of broad administrative responsibilities to the State, the Council concludes that the State will be better served by this arrangement.

The Council's study indicates that administrative weaknesses existed in EQC's handling of the priority system, and that consideration should be given to improving the priority formula. With the Federal assistance now provided for administration EQC should be better able to meet

these needs. The following paragraphs provide further details of the Council's recommendations.

(1) Priority Ranking System

In order to assess South Carolina's method of determining priority order, the Council reviewed the methods used by 17 other states. The Council also selected 21% (53 of 255) of the projects on South Carolina's 1979 Priority List to determine how rankings were calculated and documented. An effort was made to include a representative mix of projects from different categories and geographical areas as well as large and small projects. (There were actually 735 projects on the priority list, but these included different phases of the same project. The total number of whole projects was 255.)

In accordance with the Water Pollution Control Act Amendments of 1972 (P.L. 92-500, also called the Clean Water Act), Federal Regulations require that each state's priority system be based on "(A) The severity of the pollution problem; (B) The existing population affected; [and] (C) The need for preservation of high quality waters..."

South Carolina's system, approved in 1974 by the Region IV Office of EPA, has two major components. First, a proposed project is assigned to a "category" based on the severity and type of water pollution problem to be alleviated. There are six possible category assignments, and four of these are divided into subcategories. Category I projects are funded first, with A's before B's, and so on through Category VI. The second component of the system is a formula which gives each project a numerical

priority value for ranking within its category. Further details of the system and needed improvements will be provided in paragraphs (a)and (b) which follow.

(a) Sub-categories are Excessive in Number

The Council's review indicates that the category and sub-category designations used in South Carolina's system are excessive in number and apparently have little or no practical use. Table 5 shows that out of 23 possible categories and sub-categories, 91% of the projects on the '79 list are assigned to only three sub-categories (I-C, II-C and V-C).

(b) Deficiencies Noted in Formula

After the project's category has been established, each project is given a numerical priority value (or Project Priority Rank) based on the following formula:

Project Priority Rank (PR) = Priority Rank of Sub-basin (SB) x Volume of Wastewater Flow from Discharger x Pollution Problem Index (I)

Projects are to be funded in rank order from highest to lowest within each category on the list. An example of a calculation follows:

PR = SB x V x I
SB = Sub-basin rank (0-75)
V = Volume of wastewater flow from plant in millions of gallons per day (mgd.)
I = Pollution priority index (10, 7, 5 or 1)

Example:

Town of Swansea, #426 on '79 List. The project is assigned to Category II-C and is given a priority rank of 39.2:

SB = Swansea is in the Lower North Fork Edisto River sub-basin (03-09-14) with a basin rank of 35.

V = The permitted volume of flow for the discharger is .16 mgd (millions of gallons per day).

I = The pollution problem index assigned is 7.

35 x .16 x 7 = 39.2

Improvements could be made with each component of the formula: (i) The rank of the sub-basin is too general in its approach when compared to the possibility of using the rank of a particular stream segment. (ii) The volume or flow of discharge was not computed consistently for each project. In most cases, the flow of discharge used in the formula is taken from the NPDES permitted flow limit, however, there were some cases in which the Priority Review Committee relied on information submitted by a municipality's consulting engineer. (iii) The Pollution Problem Index criteria essentially duplicates the category assignment of a project. The index and/or the category criteria should be reevaluated.

(i) Sub-basin Measurement Too Broad

The rank of the sub-basin has the most weight in the priority ranking formula, yet the area of a sub-basin is very extensive to measure the impact of one discharger on a particular stream accurately. EQC's Compliance

TABLE 5

DEFINITION AND USE OF CATEGORIES FOR

MUNICIPAL CONSTRUCTION GRANTS PROJECTS IN S.C. IN 1979

	PERCENT OF PROJECTS
CATEGORY I: The project under consideration will provide for the upgrade or replacement of an existing facility which is causing a documented violation of water quality standards	
Sub-Categories	
A: Project required under Federal or State court order	0
B: Required under order from S.C. Board of DHEC	2
C: Required under NPDES Permit Compliance Schedule	25
D: To provide treatment higher than secondary standards	*
E: Existing facility is in violation of State or county permit (either in level of treatment, facility capacity, or uncorrectable malfunction	*
F. A-E not applicable, but still falls in Category I	*
CATEGORY II: Project will provide for the upgrade of an existing facility which does not meet minimum secondary treatment standards.	
Sub-Categories: Same as above	
A:	0
B:	3
C:	37
D:	*
E:	0
F:	*
CATEGORY III: Project will provide for the elimination of documented ground contamination condition or a documented water pollution nuisance condition (odor, color, etc.)	
Sub-Categories; (Same as above).	0
CATEGORY IV: Project desirable in terms of water quality improvement such as separation of combined sewers or installation of storm sewers for an existing community (No Sub-Categories).	2
CATEGORY V: To install new collection, interceptor, and/or treatment system or to provide for the expansion of an existing collection, interceptor, and/or treatment system where documented major problems do not exist but where future problems are expected with economic development.	
Sub-Categories:	
A: Related to Federal or State order, issued by court or regulatory agency	0
B: Required under conditions of previous grant offer	0
C: Not A or B, but still falls in Category V	28
CATEGORY VI: To separate combined sewers or install storm sewers for existing new community-project that has not been documented as desirable in terms of water quality improvement (No Sub-Categories	0
Total	97

*Less than one percent; when totalled these amount to 3% of all the projects.

Section Staff has been redefining the river sub-basins into over 900 stream segments. When completed, this information could be used in the priority formula to assess more accurately the impact of a wastewater discharge on a particular stream.

South Carolina has been divided by river-flow-area into 75 river sub-basins. A sub-basin designates the land area surrounding one water system; a river and its tributaries. These sub-basins are numerically ranked from 0 to 75 in order of the severity of pollution problems (two additional sub-basins have been defined since the 75 sub-basin rankings were originally calculated). For example, sub-basin 03-08-18 is the Ashley River and Cypress Swamp in Berkeley and Dorchester Counties including all its watershed or drain-off area. This sub-basin has one of the highest rankings in the State, 74 out of a possible 75, because its pollution problems are severe. This value of 74 defines an area containing large and small streams of good and bad quality; free-flowing streams as well as reservoirs, lakes and ponds; and fresh water and saltwater.

When calculating the priority ranking of any discharger located on any stream in this sub-basin, a 74 basin value is assigned even though the water quality, population affected and water use (i.e., drinking water, recreation, shell fish, industrial) of each stream may be highly diverse.

A discharger in a sub-basin with a high sub-basin rank (such as the example given), will receive the benefit of a higher ranking calculation and, therefore, higher project priority, even though the discharger may be a minor problem and miles away from the severe pollution problem area. In reverse, there may be a project in greater need of funding located in an environmentally good sub-basin area (i.e., a low basin ranking) that is penalized with a lower priority number and, therefore, not funded.

(ii) Source of Volume Measurement Not Consistent

In some cases EQC used unverified information for volume of flow resulting in inconsistent, and possibly incorrect, ranking calculations. EQC measures the average volume of wastewater flow in millions of gallons per day (mgd) to determine the amount of pollution contributed by each individual discharger. The flow measurement is, in most cases, taken from the NPDES permitted limit for flow which is based on the design capacity of the treatment facility. However, six of the 53 projects reviewed by the Council showed inconsistencies in the source of information used. For example, in the East Richland County project, the discharge flow admittedly "was taken from the attached questionnaire submitted by the engineer, [2.O mgd]... In reviewing our records, it came to light that the existing permit is 5.25 mgd..."

The engineer's flow estimate caused a very significant difference in the calculation. East Richland County Public Service District appears on the 1979 priority list with a priority rank of 938. Had the ranking been computed in the same way as others on the list using the permitted flow of 5.25 mgd, the resulting number of 2,462.3 would have placed East Richland higher on the priority list, thus closer to funding. By relying on the consulting engineer's information in the example above, this project may have been denied funding. The Clean Water Act, Section 35, states, "The criteria must be clearly delineated in the approved State priority system and applied consistently to all projects." [Emphasis Added]

(iii) Pollution Problem Index is a Duplication

As Table 6 indicates, the Pollution Problem Index essentially duplicates the criteria for category assignment used in the priority system.

For example, Category I and the Pollution Problem Index of 10 both refer to a project that "is causing a documented violation of water quality standards." This means that two parts of the priority system use the same criteria to appraise construction projects.

TABLE 6

COMPARISON OF POLLUTION PROBLEM INDEX TO CATEGORIES

Pollution Problem Index		Category	
Value Assigned	Definition	Number	Definition
10	Discharge is causing documented violation of water quality standards or is raw discharge	I	Causing documented violation of water quality standards
7	Discharge receives less than the minimally required treatment as defined by law	II	Facility does not meet minimum secondary treatment standards
5	Discharge is contributing to documented water pollutional nuisance condition (odor, color)	III	Documented ground water contamination or nuisance condition exists
1	Discharge meets minimal treatment standards and is not causing any documented water quality problems	V	Documented major problems do not exist

RECOMMENDATIONS

DHEC SHOULD CONSIDER MAKING THE FOLLOWING CHANGES TO THE PRIORITY RANKING SYSTEM:

SUB-CATEGORIES COULD BE ELIMINATED. A CATEGORY DELINEATION SHOULD BE SUFFICIENT WITH EACH PROJECT RANKED NUMERICALLY WITHIN THE CATEGORY ACCORDING TO A PRIORITY FORMULA WITH THE FOLLOWING IMPROVEMENTS:

(a) STREAM SEGMENTS SHOULD BE INCORPORATED INTO THE PRIORITY FORMULA TO TAKE THE PLACE OF THE SUB-BASIN RANKING WHEN THE INFORMATION BECOMES AVAILABLE.

(b) THE SOURCE OF THE FLOW OR DISCHARGE COMPONENT SHOULD BE CONSISTENT ENSURING FAIRNESS TO ALL APPLICANTS.

(c) THE POLLUTION PROBLEM INDEX COMPONENT REITERATES THE CATEGORY DIVISIONS AND SHOULD BE ELIMINATED.

(2) Project Priority Rankings Need Improved Documentation

The Council found that the documentation to support project priorities needed improvement. DHEC's Priority System policy establishes a nine-member Priority Review Committee whose purpose is to "insure the most equitable allocation of these construction grant funds" and "to determine the priority ratings of the construction grant projects submitted for their consideration." It further provides that:

> Fact sheets for each project...will be prepared by the Secretary of the Committee and presented to the members of the Committee for their information. Specified, formal meetings of the Committee, based on these fact sheets, will be held.

From these sheets, a draft priority list is prepared and becomes the subject of a public hearing for further comments. The final list is prepared after all protests have been heard and acted upon by the Committee.

Of the 53 projects reviewed by the Council, 77% of the fact sheets were missing, incomplete or incorrect. The fact sheets found had not been updated since the first list was generated in 1974.

Since 1974, in lieu of these fact sheets, the Committee has been given a copy of a "Priority Questionnaire" completed by the municipality's engineer responsible for each project. These questionnaires do not contain the data previously contained on fact sheets or work sheets that would make it possible to recompute the priority ranking or detect errors.

This lack of documentation is contrary to the intent of Federal Regulations as expressed in EPA's Construction Grants manual:

> States will provide interested persons with information concerning their priority system as well as detail on the ranking of particular projects [Emphasis Added].

Each ranking should be supported by a fact sheet that is easily accessible, self-explanatory, and supplies all the information necessary to compute a ranking.

Since the Council's review, the Federal Government has made funds available to support the administration of the priority list and EQC has corrected this situation.

(3) Need to Review Priority List

Of 53 projects sampled, seven numerical rankings were found to have a computation, typing or transposition error. Since the Council's review, these errors have been corrected, and according to DHEC officials, the errors did not result in any project being inappropriately funded. An additional 12 projects were noted where the use of the most recent information available would have made some difference in the ranking.

Errors of this type were possible because EQC had not reviewed and regenerated the ranking numbers since they were first established in 1974. Except for new projects, the numbers were transferred from one year's list to the next. The Project Managers within EQC said that the projects should not change, and that there was not sufficient time to review and regenerate all the numbers on the list each year.

Historically, the Committee depended upon EQC's Project Managers to supply the correct information for the list and upon the Grants Administrator to maintain the list and periodically

review it. EPA Program Requirements Memorandum #13 (June 1978) states that "At a minimum a complete review is to be done quarterly."

RECOMMENDATIONS

DHEC SHOULD:

(1) COMPLY WITH FEDERAL REGULATIONS REQUIRING THAT PRIORITY LIST RANKINGS BE REGENERATED ANNUALLY AND REVIEWED QUARTERLY.

(2) COMPLY WITH THE AGENCY'S POLICY REQUIRING THAT CURRENT FACT SHEETS (INCLUDING FORMULA COMPUTATIONS FOR EACH PROJECT) BE SUBMITTED TO THE PRIORITY COMMITTEE PRIOR TO THE ANNUAL MEETING HELD FOR CERTIFICATION OF THE LIST.

(3) INSTITUTE REVIEW PROCEDURES ENSURING THE ACCURACY OF PROJECT RANKINGS.

(4) ENSURE ACCOUNTABILITY BY MAKING DOCUMENTATION FOR ALL COMPUTATIONS MORE ACCESSIBLE.

CHAPTER III

SOLID WASTE MANAGEMENT

An Overview of Hazardous Waste Management

Introduction

South Carolina is faced with the problem of what to do with an estimated 1.4 million tons of hazardous waste generated in the State each year. In response to this issue, DHEC has developed, and the General Assembly has approved hazardous waste regulations for South Carolina. Indiscriminate dumping of toxic chemicals and other dangerous materials has in recent years gained public attention throughout the country. The term "hazardous waste" does not include radioactive waste materials. In addition to immediate environmental damage, various health problems have been linked to the improper disposal of materials considered to be hazardous wastes.

The Audit Council examined DHEC's Hazardous Waste Management Program and found that hazardous waste had been virtually unregulated in South Carolina as in other states. Since there was no well established program in effect, the Council staff reviewed the history of the problem and the events leading up to the approval of South Carolina's hazardous waste regulations on March 19, 1980. The degree of the problem in South Carolina was studied, as well as the efforts of the Federal Government and other State Governments to deal with hazardous waste. The Council conducted interviews with hazardous waste officials within DHEC and with EPA officials in Atlanta and Washington. Eight industrial waste storage and disposal sites in the State were also visited by the Council.

Overview

A recent EPA study estimates that more than 56 million metric tons of hazardous waste will be produced annually in the United States by 1980. South Carolina industry, according to a study by DHEC, produces as much as three (3) million metric tons each year. No one has known how most of this waste is disposed of or where it is going. EPA estimates there may be 50,000 hazardous waste dumps in the United States; and as many as 34,000 of these may pose serious health or environmental hazards. Its estimates show that South Carolina alone may have more than 1,000 sites containing various amounts of hazardous chemicals and other wastes. The actual number, locations and degree of hazard are not fully known.

Traditionally, hazardous wastes have been buried on or near the site where they were generated by different methods which may not provide adequate protection for the public health or the environment. Even today this economical and convenient means of hazardous waste disposal is used by most of the nation's industries which have little incentive without regulations to do otherwise. If designed properly and monitored regularly, landfills can be a reasonably safe method of disposal. If not well managed, however, the wastes contained in landfills can pollute surface and ground water in the surrounding area. In heavily industrialized areas of the United States where hazardous wastes have been buried for decades, pollution of this type has become evident.

The Love Canal site in Niagara Falls, New York, is probably the best known example of pollution resulting from an abandoned landfill. A large national chemical company dumped over 21,000 tons of chemical wastes into an abandoned canal in Niagara Falls, New York, between

1937 and 1953, and then covered over the site. In 1977, chemicals began seeping back to the surface and into the basements of houses that had been built there. With the return of the chemicals came the discovery of a corresponding high incidence of miscarriages, birth defects, cancer and other health related problems in residents of the Love Canal area. By 1979, the Federal Government and the State Government of New York had spent $27 million cleaning up the site and relocating over 200 families.

Although the Love Canal site is apparently the most extreme example of pollution from hazardous waste discovered to date, there are indications that it may be the first of many. A task force in New York found 36 sites in Erie and Niagara Counties which are reported to be potentially as polluted as the Love Canal site. Although South Carolina is not as heavily industrialized as New York, the State has attracted several industries considered by EPA to have the greatest potential for hazardous waste generation. The State has, for example, attracted 115 new chemical plants since 1960. Discoveries of problems like those found in other states are not impossible in South Carolina.

Perhaps the greatest threat posed by hazardous waste disposal is groundwater contamination. More than one-half of the American population now depends on groundwater sources for drinking water. Ground water pollution, which can result from improper disposal of wastes would be especially damaging to South Carolina which gets 65 percent of its drinking water from ground water sources. Once ground water is contaminated, it is difficult to clean up and restore to a usable condition. Clean-up work that can be done would most likely be financed by the taxpayers.

Instead of burying hazardous waste, some industries have paid disposal or "recycling" companies to haul their waste away. Some of these wastes have reportedly been dumped along the roadside and in municipal landfills or in open field not designed for hazardous waste. For example, officials in North Carolina found that PCB's (Polychlorinated Biphenyls) were dumped from a truck along the state's highways. PCB's are highly toxic chemical components that have been linked to cancer and other health-related problems. In South Carolina, DHEC discovered that PCB-contaminated wastes were routinely dumped into nine areas in Pickens County, including at least one municipal landfill.

An advisory against eating fish from Lake Hartwell in northwestern South Carolina was issued by DHEC and EPA in 1976 after it was revealed that water samples and fish collected from the lake contained dangerous levels of PCB's. Although PCB's are no longer widely used, they are extremely hard to break down and remain in the environment for long periods of time. Portions of the lake remain under an advisory today as as result of PCB contamination.

DHEC is also aware of several open field dumps and storage sites in the State where rotting barrels of hazardous substances are being kept. Some industries store large quantities of hazardous waste on their plant sites in inadequate and unsupervised areas. During 1979, a fire at a Rock Hill chemical company set off a series of explosions among 5,000 barrels of waste stored on-site. Approximately 1,000 barrels of flammable wastes exploded during the blaze. Seventy-five people were evacuated and about 120 state and local officials were called to the scene.

The improper disposal of hazardous waste clearly presents a problem in South Carolina. DHEC still has no accurate perspective on the number or severity of hazardous waste sites. The existence of, or the potential for major damage to the environment or to the public health, as has been demonstrated in other states, also exists in South Carolina. The need for regulation of the disposal of these wastes becomes evident. The problem has become so serious that a recent report on hazardous waste management by a subcommittee of the U. S. Congress stated that "even an extraordinary effort, commenced immediately, could not achieve adequate protection for the American public for years to come."

Control of Hazardous Waste

Under past law, DHEC's authority to control the hazardous waste problem was limited. The Department had permitting authority over landfill operations, but its ability to control storage and transportation was limited. Until recently, DHEC also lacked the authority to require generators of hazardous waste to document how they disposed of their wastes. Without comprehensive regulations, DHEC's authority was confined for the most part to responding to emergency situations after they had occurred.

The U. S. Environmental Protection Agency has worked for over three years to produce acceptable guidelines for the regulation of hazardous wastes. In the meantime, states where the problem has demanded immediate attention have gone ahead with developing their own regulations. South Carolina has had its share of hazardous waste problems and, according to a DHEC official, is now ranked in the top 20 states for the amount of hazardous wastes generated.

In 1978, in response to the problem, the South Carolina Legislature passed the Hazardous Waste Management Act which mandated the Department of Health and Environmental Control to develop regulations to implement the law.

The Hazardous Waste staff at DHEC began working on the regulations in September 1978 following a request by the Board. Using regulations from other states and draft EPA guidelines as models, the staff completed an initial draft of the proposed regulations in December. The Board approved this draft for publication at its meeting that month. A public hearing was held on January 29, 1979, where the DHEC staff received oral and written comments from industrial and environmental groups interested in the topic. The agency also received advice from a special technical committee of the South Carolina Chamber of Commerce.

A final draft of the recommendations was completed in March 1979 and submitted to the Board for approval. This final draft incorporated many of the changes recommended by special interest groups, including a reduction in insurance requirements for transportation and storage of hazardous waste. At its March meeting, after hearing testimony from both supporters and opponents of the regulations, the Board voted to send them to the Legislature for approval.

The regulations were sent to the General Assembly in April. However, the two committees assigned to review the regulations asked DHEC to withdraw them for further study. At its June 12, 1979 meeting, the DHEC Board decided to withdraw the proposed Hazardous Waste Regulations for further study.

A special committee, the Hazardous Waste Regulations Committee, was established by the DHEC Board to review the hazardous waste

problem and develop an interim plan to control hazardous waste until the Legislature could consider more extensive regulations during the 1980 session.

The committee, recognizing the need for immediate action to deal with existing hazardous waste problems, developed a plan to phase-in hazardous waste regulations by means of a step-by-step process. This process is to include the development of requirements for identification, notification and storage of hazardous wastes which were to be enacted on an emergency basis as soon as possible. This was to give the department a handle on how much hazardous waste is being generated and where it is going. The committee developed requirements for other elements of a comprehensive management program which included provisions for generators, transporters, treatment and disposal facilities, financial responsibility and permitting. A complete set of regulations was submitted to the General Assembly in January of 1980 and approved on March 19, 1980.

APPENDIX

South Carolina Department of Health and Environmental Control

June 23, 1980

PLEASE REPLY TO:
Post Office Drawer 609
Camden, South Carolina
29020

Mr. George L. Schroeder
Director
Legislative Audit Council
Bankers Trust Tower
Columbia, South Carolina 29201

Dear Mr. Schroeder:

Attached is our response to the final draft audit of the Environmental Quality Control unit of the Department of Health and Environmental Control.

Though by the very nature of its purpose--someone or some group being evaluated by an "outside" group--whereby tensions generally are inherent, the staff has reported that this has not been the rule in this case, once the audit actually began. For this I am most appreciative, and certainly found it true in my rather extensive discussions with both Mr. Stinson and Mr. Fusco.

I thank you and your staff for their professional and unbiased attitude and cooperation on what we consider a most extensive review--and one which we feel will assist us in providing better and more responsive service to the people of South Carolina.

With kindest personal regards.

Sincerely,

WILLIAM M. WILSON
Chairman

WMW/cm
Attachments

cc: Robert S. Jackson, M.D.
Commissioner
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

ADMINISTRATION

The Department is in agreement that the Board should have as wide and diverse representation of the public as possible. The Board is receptive to the recommendation for the establishment of some minimum guidelines for membership. However, such guidelines should not be so rigid as to fragment the Board, causing a possible loss of the balanced membership representing the viewpoints, interpretations, desires and overall needs of the public. The Board believes its membership should continue to be determined by the Executive and Legislative bodies with ultimate responsibility for the final decision as to Board composition, without shackling restrictions hampering the discharge of that responsibility. To date, the Board as composed has shown a balanced approach to the determination of reasonableness, taking into consideration program and advisory committee testimony and recommendations, public acceptance, legislative intent, economic considerations and program inter-relationships.

WASTEWATER AND STREAM QUALITY CONTROL

DHEC Response to Summary:

DHEC agrees with the Legislative Audit Council that "water quality is likely the best measure of the success of EQC's wastewater efforts" and that "several sources indicate that overall South Carolina's water quality is good and that improvements are being made." We suggest that the Summary also include the broad analysis from Page 24 of the report which states: "The progress made in upgrading systems, and the efforts to implement treatment technology and water quality compliance activities, indicates that EQC has been effective in wastewater improvements." This analysis is particularly important when you consider that between 1970 and 1979, this State went through a tremendous industrial expansion with similar population growth. Approximately 7.53 billion dollars were invested in industrial development in South Carolina. Yet, water quality is good in most areas and is improving in problem areas. This supports DHEC position that the legislative intent of the State Pollution Control Act, which stipulates balanced growth consistent with environmental protection, is being met.

DHEC concurs with the Legislative Audit Council analysis that the Agency seeks cooperation and voluntary compliance and that the LAC agrees that "this is the most desirable approach" and that "the Council found the process to be equitable." DHEC, while stressing cooperation, has shown that disregard for environmental protection laws will be handled appropriately. Since July 1, 1977, DHEC has assessed $96,600 in civil penalties for violations of water pollution control legislation. The Staff has also been given authority by the Board since the audit to assure administrative penalties within certain limits on municipal and industrial as well as community wastewater facilities, which now generally require less staff and legal time to reach an agreement on violations.

The Legislative Audit Council should include the fact that DHEC samples and analyzes wastewater discharges and inspects treatment facilities to determine compliance. Due to financial limitations, this is not done at the frequency DHEC desires.

DHEC, in a recent survey, found that for the quarter ending March 31, 1980, failure to report on Discharge Monitoring Reports had dropped to 8.1%.

DHEC Response to Recommendations:

DHEC has a system which defines the types of enforcement actions to be taken in specific cases and uses a target response time as a management tool. This system is constantly being reviewed and improved.

DHEC agrees with the Legislative Audit Council that the harm done to the environment, the good faith of the discharger, and any economic gain to the discharger as a result of delays should be considered in assessing civil penalties. DHEC does consider these and other appropriate factors in taking enforcement action.

INVENTORY

DHEC Response to Summary:

DHEC now has all radios properly recorded on the master inventory list. This effort started during the time of audit and has now been completed.

DHEC has a continuing program to locate, or to determine what disposition was made of, the missing items. These missing items will not be written off, but rather transferred to an inactive master list until such time as their actual status is determined. Much of the inactive master and missing items occurred during the confusion of the merger in 1973.

All surplus property has been accounted for or disposed of in an approved manner. The inventory system is presently current and regular spot checks are conducted to further insure that the system is being maintained on a current basis. The DHEC Bureau Office also conducts a yearly inventory and the Office of Environmental Quality Control conducts a mid-year inventory.

MUNICIPAL CONSTRUCTION GRANTS PROGRAM

DHEC Response to Summary:

DHEC agrees with the Legislative Audit Council in its assessment that this program has "helped maintain and improve the State's water quality." Increased Federal assistance provided to DHEC for administering the program should reduce administrative limitations. The administrative weaknesses noted by the Legislative Audit Council have for the most part been corrected. Consideration has been given to modifying the priority system but any benefits appear to be outweighed by disruption in the management of the program at this time. However, consideration to system modifications will be given, as deemed appropriate.

NEED TO EVALUATE DISTRICT STAFF EFFICIENCY

DHEC Response to Summary and Recommendations:

Based on information available from the time sheets, the comments made are probably factual. Several factors explain why the time spent on plant evaluations differs. The type and size of a typical treatment facility varies greatly from a principally urban district to primarily rural district. The length of service of inspectors will also contribute to the time variances as those inspectors with more experience will tend to be more knowledgeable and will tend to spend more time on a more thorough plant evaluation.

Efforts are currently being made to insure more uniformity Statewide in the inspection and evaluation programs.

On-going efforts continue in order to assure that a full productive day is obtained from each employee. A personnel cost accounting system was initiated during the audit which has since been approved by both Federal and State auditors. The District Office supervision has also been reorganized to achieve better management.